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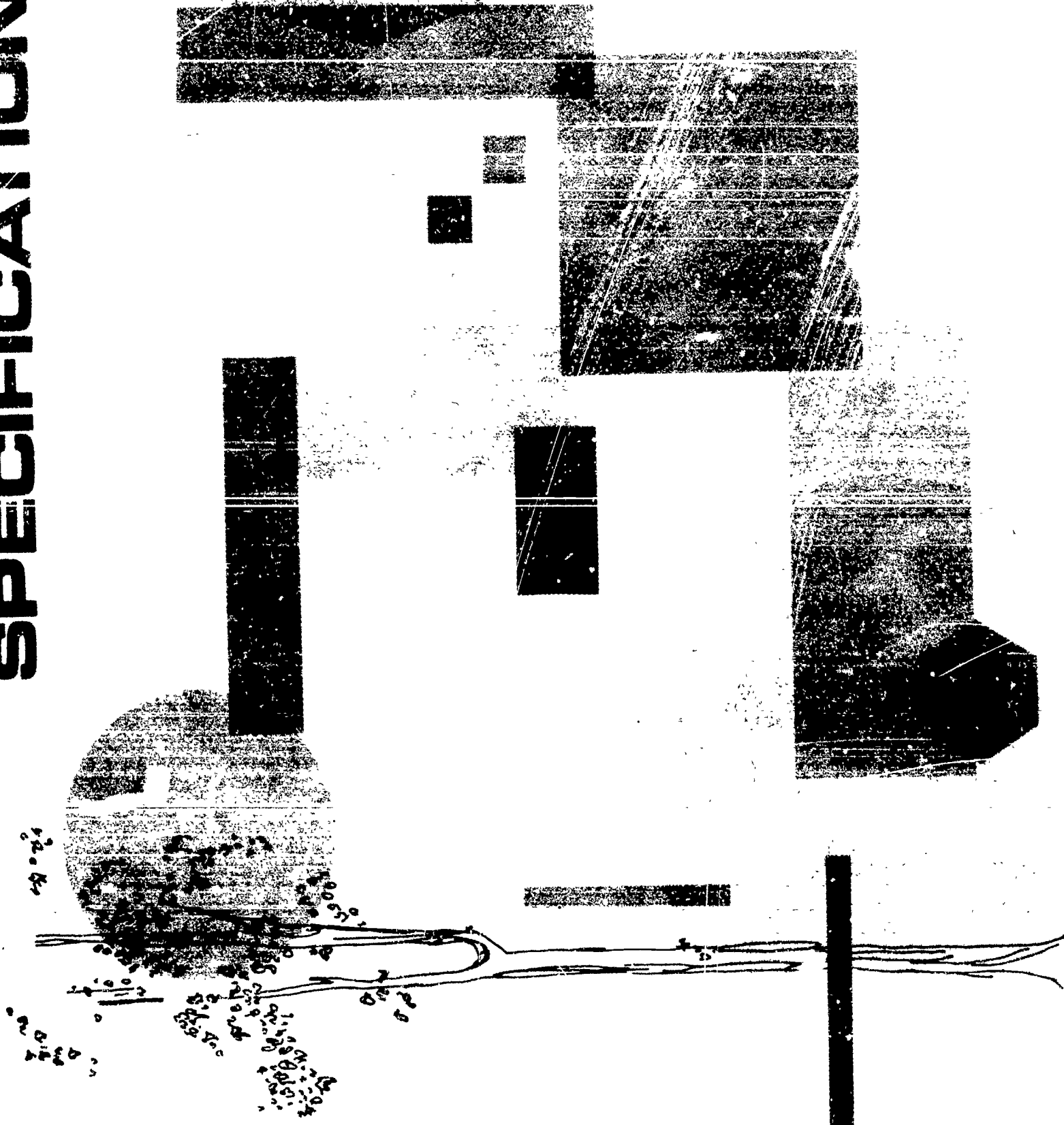
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Answers to the questions "What are Educational Specifications?" and "Why develop Educational Specifications?", are provided along with a discussion of the problems and purposes of the educational program as it relates to the preparation of educational specifications. Environmental interaction and the individual, and environmental factors are likewise discussed in a similar context. The problem of the development of educational specifications is presented and suggestions are made as to organization, meetings, and assembling reports. Use of educational specifications by the architect and the educator is explained. The appendix contains an outline for the educational specifications document, a sample summary of basic facts and information, a sample space summary, and sample space relationships. (NI)

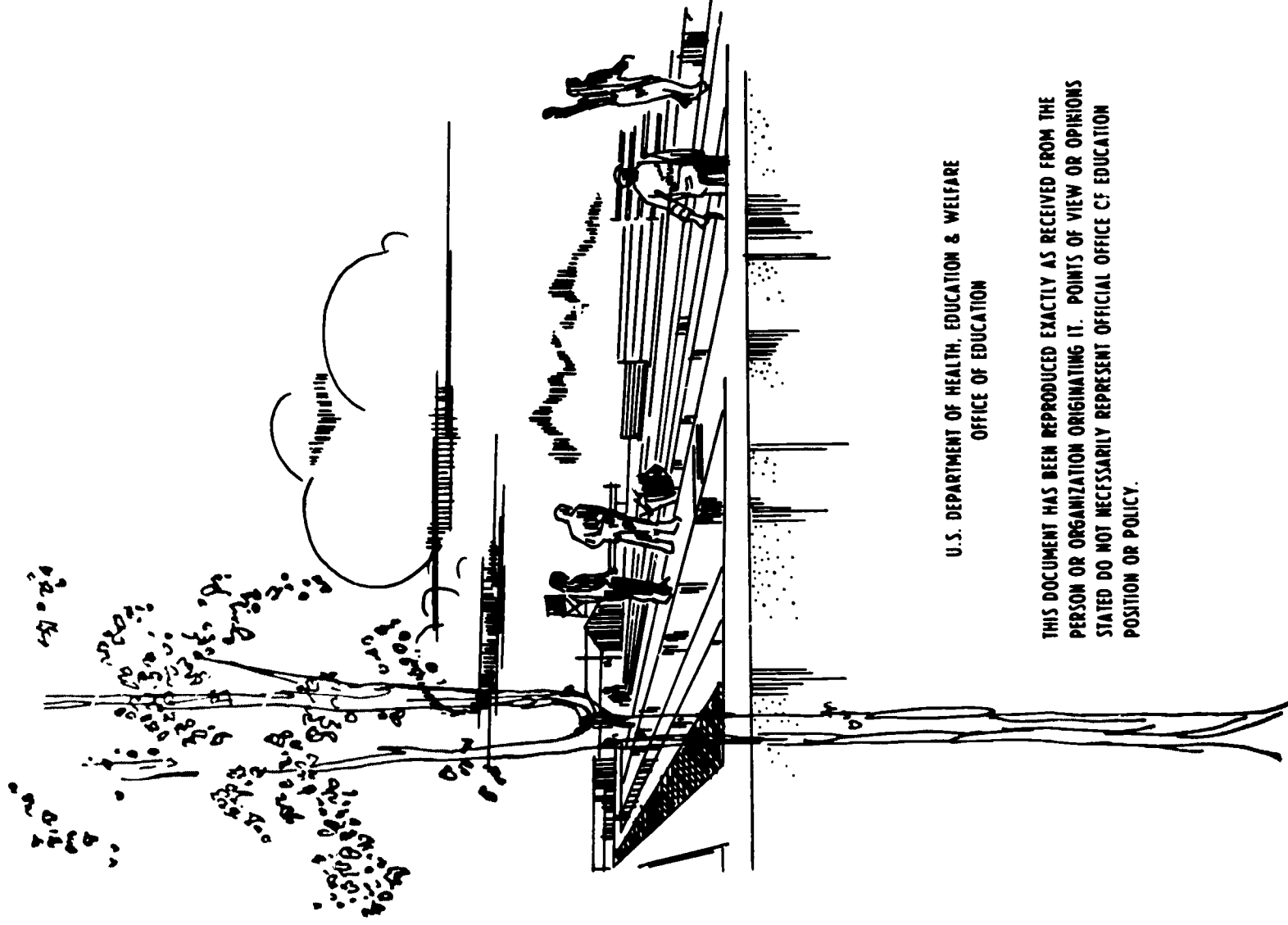


EDUCATIONAL SPECIFICATIONS



EDUCATIONAL SPECIFICATIONS

NORTH CAROLINA DEPARTMENT OF PUBLIC INSTRUCTION
DIVISION OF SCHOOL PLANNING PUBLICATION NO. 411



U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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FOREWORD

New school buildings are rising in North Carolina at a rapid rate. Boards of education are striving to get the best buildings possible in terms of financial capability. School programs are being reviewed, analyzed, and adjusted, as innovations vital to quality education enter upon the educational scene. Old patterns of programs and old schemes for buildings are giving way to new ones.

An awareness of the value of developing educational specifications has come to the forefront. Superintendents and their staffs are making the additional effort necessary to develop long-range plans for improving school facilities. And selected persons in the administrative unit are being designated to develop essential education and specifications for new school buildings.

To assist local boards of education and superintendents in developing these educational specifications, the Department of Public Instruction, Division of School Planning, is available upon request.

May 1968

CHARLES F. CARROLL

State Superintendent of Public Instruction

PREFACE

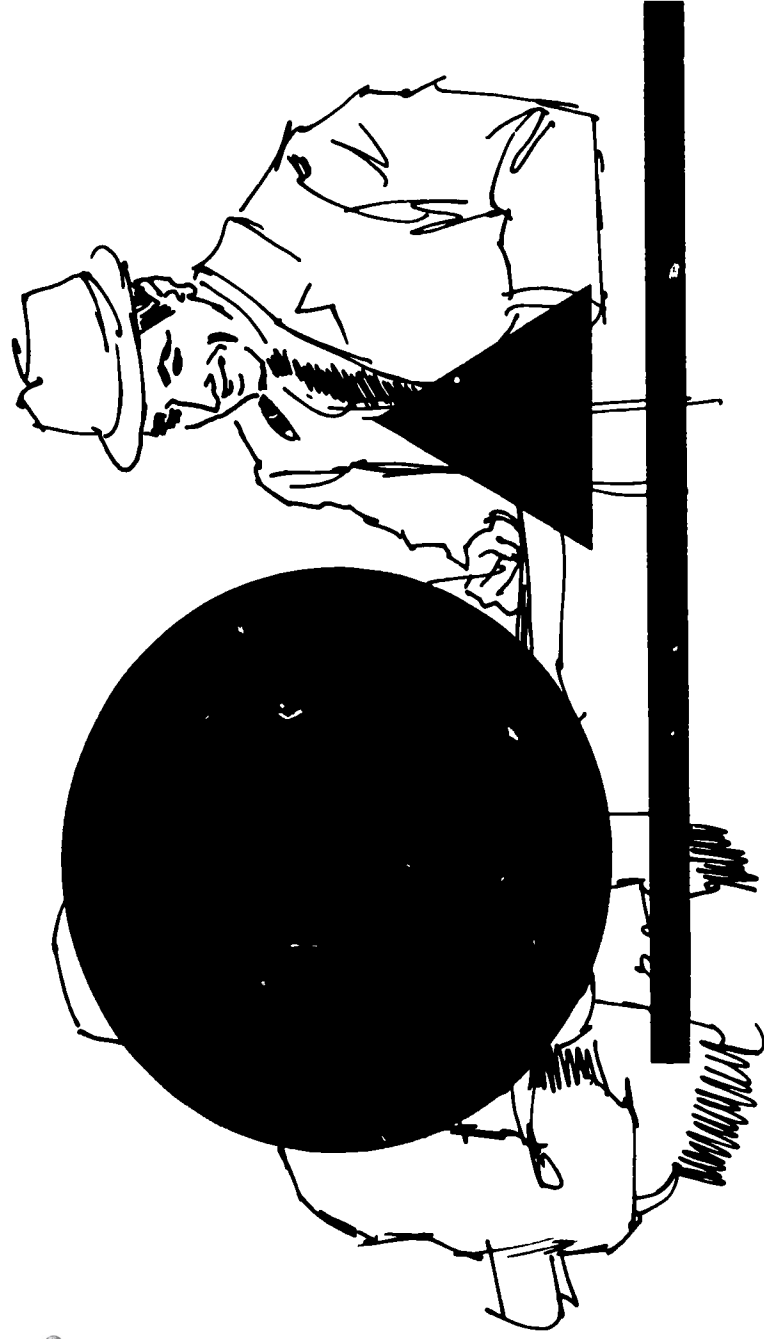
The superintendent of schools has the major responsibility for the preparation of educational specifications. With the approval of the board of education and with the assistance of his staff and others selected to assist him, he should assume the direction of the project as well as serve as liaison between the board of education, the school staff, both professional and non-professional, and the citizens of the community.

This particular publication has been prepared as a guide for superintendents, boards of education, and others responsible for developing educational specifications. Superintendents throughout the State were given opportunity to make suggestions for revision of the first draft. To these superintendents we extend our appreciation.

In addition to those superintendents who made valuable suggestions, I wish to acknowledge the assistance of John E. Justus, Educational Consultant, who directed the preparation of this publication; Marvin R. A. Johnson, Consulting Architect; Charles Reed, Jr., Consulting Architect; Mrs. Patricia Bowers, Artist-Draftsman, of the Division of School Planning; and Nile F. Hunt, Director of the Division of General Education. Acknowledgement is also made to L. H. Jobe, retired member of the State Department of Public Instruction, for organizing and editing the material for printing.

J. L. PIERCE, Director

Division of School Planning



EDUCATIONAL SPECIFICATIONS IN THE PLANNING PROCESS

WHAT ARE EDUCATIONAL SPECIFICATIONS?

Visual Concept

Before any building is designed, some conception of the structure as a functional entity must be visualized by the educators. Educators should know (1) the philosophy and objectives of the community and school, (2) the educational program, including activities of pupils and teachers, (3) materials and equipment needs, (4) space needs, (5) space relations characteristics, (6) environmental considerations, and (7) general information. Educators should transmit this concept to the architect in the *educational specifications*.

Definition

Educational specifications may be defined as a written means of communication between the educators and the design professions. They are the communicative media through which the educators identify the educational program and factors which affect learning and teaching, thus providing a basis for the architect to use in developing the building plans and specifications.

Characteristics

Some characteristics of educational specifications are:

- *They are the responsibility of the educators.*
- *They should be based on a predetermined educational program.*
- *They should state the educators' concept of facility and program needs and leave methods of satisfying the needs to the design professions.*
- *They should be free of rigid prescription.*

WHY DEVELOP EDUCATIONAL SPECIFICATIONS?

Purposes

Means of Communication. The primary purpose for developing educational specifications is to provide an effective means of communication between the educational agency and the design professions. In addition to written educational specifications, discussions and visits to existing facilities may greatly aid in communication and understanding. Hopefully, better communications will lead to a better facility.

Means of Shaping Thought. Another purpose for developing a set of educational specifications is to provide opportunity for the staff to collect and analyze pertinent information about critical factors, such as population growth and financial possibilities, and to firm up their thinking with regard to:

- *Services to students and community*
- *Philosophy and objectives of the school*
- *School organization*
- *Methods of instruction*
- *Program of studies*
- *Furniture and equipment*
- *Desired environment*
- *Utilization of space*

Public Relations. Still another purpose for developing educational specifications is to involve the public. In the gathering of information, numerous contacts must be made with individuals representing various community agencies. These contacts provide a means by which the community, as well as those engaged in the process of gathering and assembling such information, may learn of the proposed plans and thus increase their support of the project.

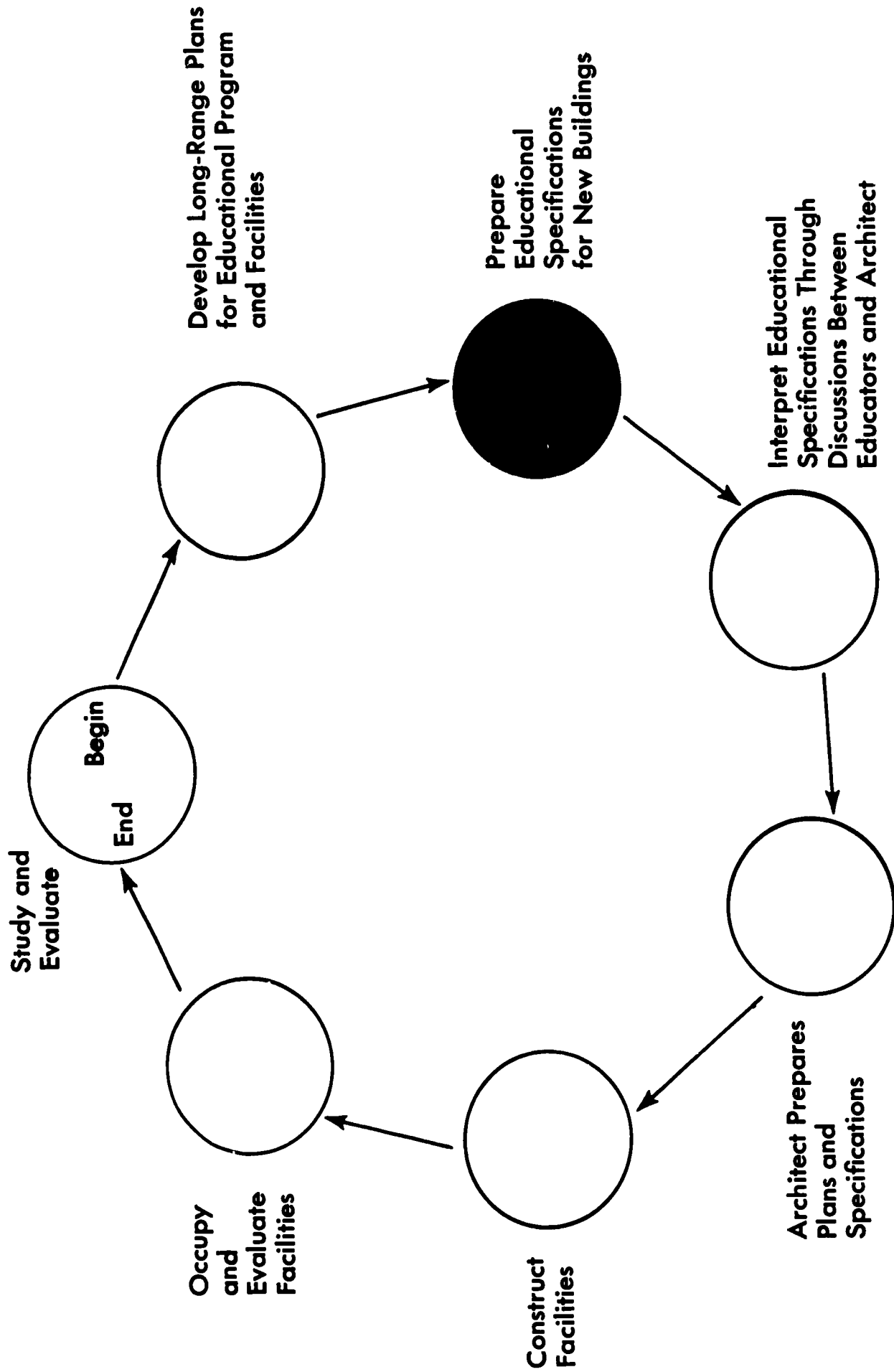
Decisions by Educators. Important decisions should be made and recorded in accordance with accepted planning procedures—with the educational decisions being made in logical sequence by educators and arrived at on the basis of the best information and agreed upon purposes and objectives. Decisions should be reached after involving the staff in the process of developing the educational specifications.

Prevent Planning Errors. Developing educational specifications is a distinct part of the total planning process in education. Hopefully, enthusiastic attention to such specifications will help prevent some of the planning errors of the past, such as:

- *Building a building without really knowing what needs to be done.*
- *Taking the attitude of "let someone else take the responsibility."*
- *Improper use of information and research.*
- *Failing to explore trends, innovations, and experiments.*
- *Not organizing for planning.*
- *Not involving responsible people in planning.*
- *Taking action without regard to scheduling events.*
- *Placing the educational program planning in the hands of an architect without giving him adequate information.*
- *Not having a document with which to evaluate the work of the architect.*
- *Devoting too little time to planning.*

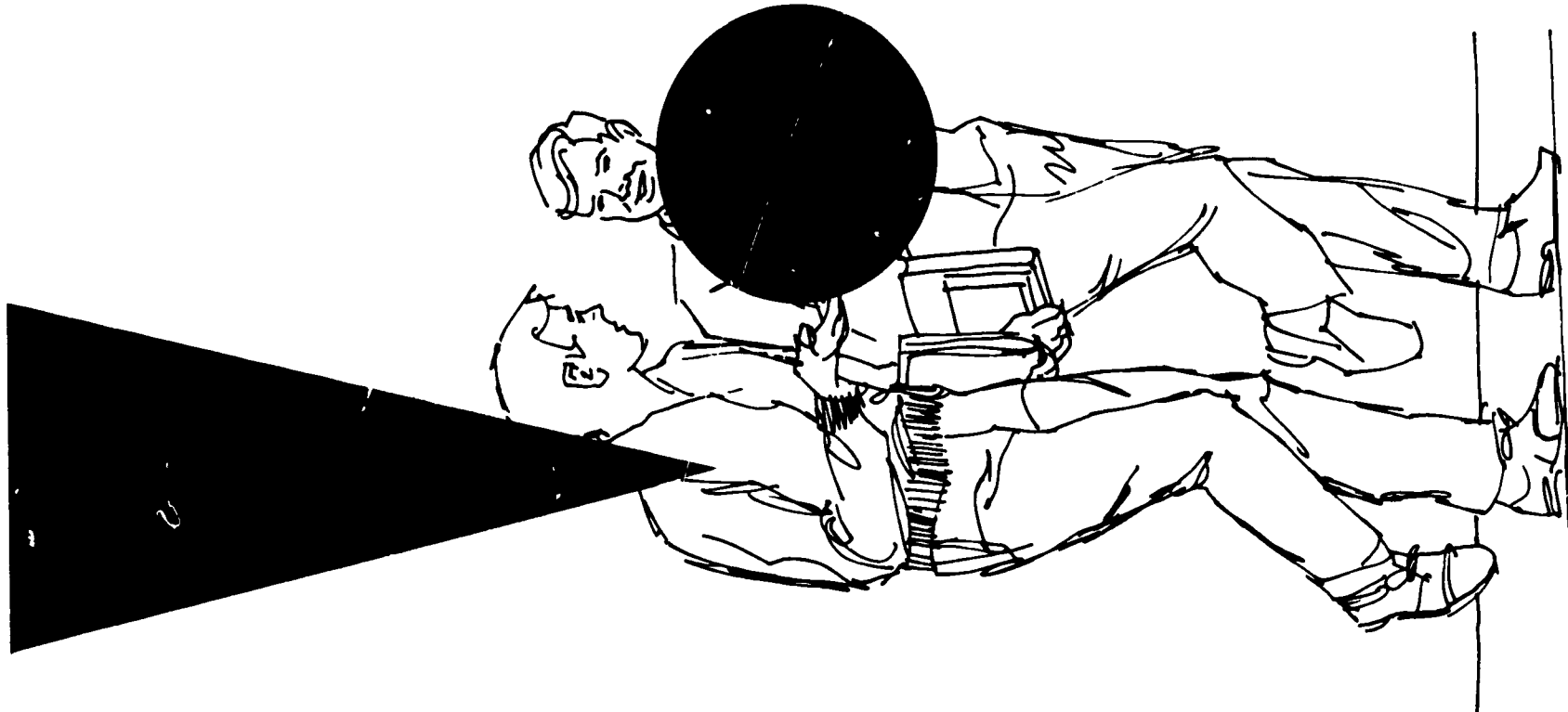
Place in Planning Process

The following chart presents graphically the place of the preparation of educational specifications in the total planning process:



ASSISTANCE FROM STATE DEPARTMENT

The Department of Public Instruction is available to assist any local school system in the planning and preparation of educational specifications. Staff members of the Division of School Planning are available to assist with the organization, to advise and help to obtain consultants as needed, and to review the work at each critical stage in the development of the specifications. Assistance should be requested, when desired, from the Director, Division of School Planning.



THE EDUCATIONAL PROGRAM

THE PROBLEM

The educational program portion of a set of educational specifications should be written as concisely as possible. The coverage given to the educational program should deal with:

- *Philosophy (what is believed)*
- *Objectives (what the goals are)*
- *Activities (what pupils and teachers actually do, plus the program of studies)*
- *Equipment and furniture needs (that affect design)*
- *Space needs (kitchen, number, and estimated size)*
- *Space relationships (location)*
- *Other basic facts (that can be quantified)*

Developers of educational specifications must give careful attention to (1) purposes of education, (2) the individual, (3) shaping the program, and (4) technology.

PURPOSES

Any fruitful analysis of the educational program for implications relevant to educational specifications must start with a brief look at the purposes of education. Goals and objectives must reach right down to the bed rock supporting the foundation of education. Educational specifications must reflect in some degree just what it is that education is supposed to be.

Knowledge

The traditional view about the purposes of education is included in the concept of schools and the educative process as "a knowledge industry." Education, however, is more than the acquisition of facts. There are certain attendant considerations which give life and meaning to facts, which hold real implications for drawing up educational specifications:

- *How to acquire knowledge*
- *How to synthesize knowledge*
- *How to generalize from knowledge*
- *How to apply knowledge*

Social Development

Another generally accepted purpose of the educative process is to provide opportunities for social development. Being a responsible member of the social order, the subculture, or the peer group, and becoming more humane are all woven into this concept of educational purpose. Social development is a process and not a by-product or a fall-out dividend that is automatically collected. The educational specifications should describe the social process functioning within the school.

Fundamental Skills

The rudiments of educational competency are proficiency in certain fundamental skills—communication skills (listening, speaking, reading, writing); reasoning and computation skills; and citizenship skills. Proficiency in these, consistent with the capability of the individual, is the base for human activity. Educational specifications should describe how skills are acquired through activities of pupils and teachers.

THE INDIVIDUAL

The human personality is shaped by diverse factors and forces. Each individual draws upon a unique ability—or more precisely perhaps a unique potential. Each individual is in part a melange of all that he has seen and done, all that has been done for him, and all that has been done to him.

Learning

Like personality, learning is individual. Others may manipulate the setting—making learning more enticing, more stimulating, or more readily internalized; or manipulating the setting may accelerate learning—but learning itself is a uniquely personal phenomenon.

Educators must stop looking only at masses and give each individual an identity, a face, a personality of his own. A good set of educational specifications will consider the individual and his place in the school.

THE PROGRAM

The educational program is all that is embraced in confrontations or interactions between teachers and pupils in teaching-learning activities. It may be perceived as those disciplines and courses in which instruction is given and learning takes place. It is not rigid or static; it is viable and malleable. It can be shaped to varying configurations to accommodate a heterogeneous group of students. It is not, however, a will-of-the-wisp sort of thing that changes without good reason. Its initial determination and subsequent changes are arrived at through an ordered process.

In the first place, the program will include that which is fixed by the State. In addition, the program will include other offerings, determined by the local board of education to make a qualitative, balanced design. The extent of the design will be largely dependent upon a number of variables for each situation. Although variables will help determine the extent of the design, some things must not be omitted:

- *The school should deal realistically with physical, mental, and emotional health. These may be achieved only by design, intent, and effort and not as by-products.*
- *Children with special handicaps are the responsibility of educators. Having no program for these children cannot be accepted.*

Educators are just now beginning to realize that the design, the structure, and the maintenance of a qualitative educational program is truly a professional task.

In many instances, one cannot find a teacher who is a creative manager, director, and designer of learning experiences and activities; the teacher remains the drill master and the presenter. Educators are sometimes too obsessed with the artifacts and pedestrian routines of teaching instead of being concerned with the real business of teaching, the action and interaction in learning, and the behavior-changing that accompanies learning. Educational specifications must identify the activities of teachers.

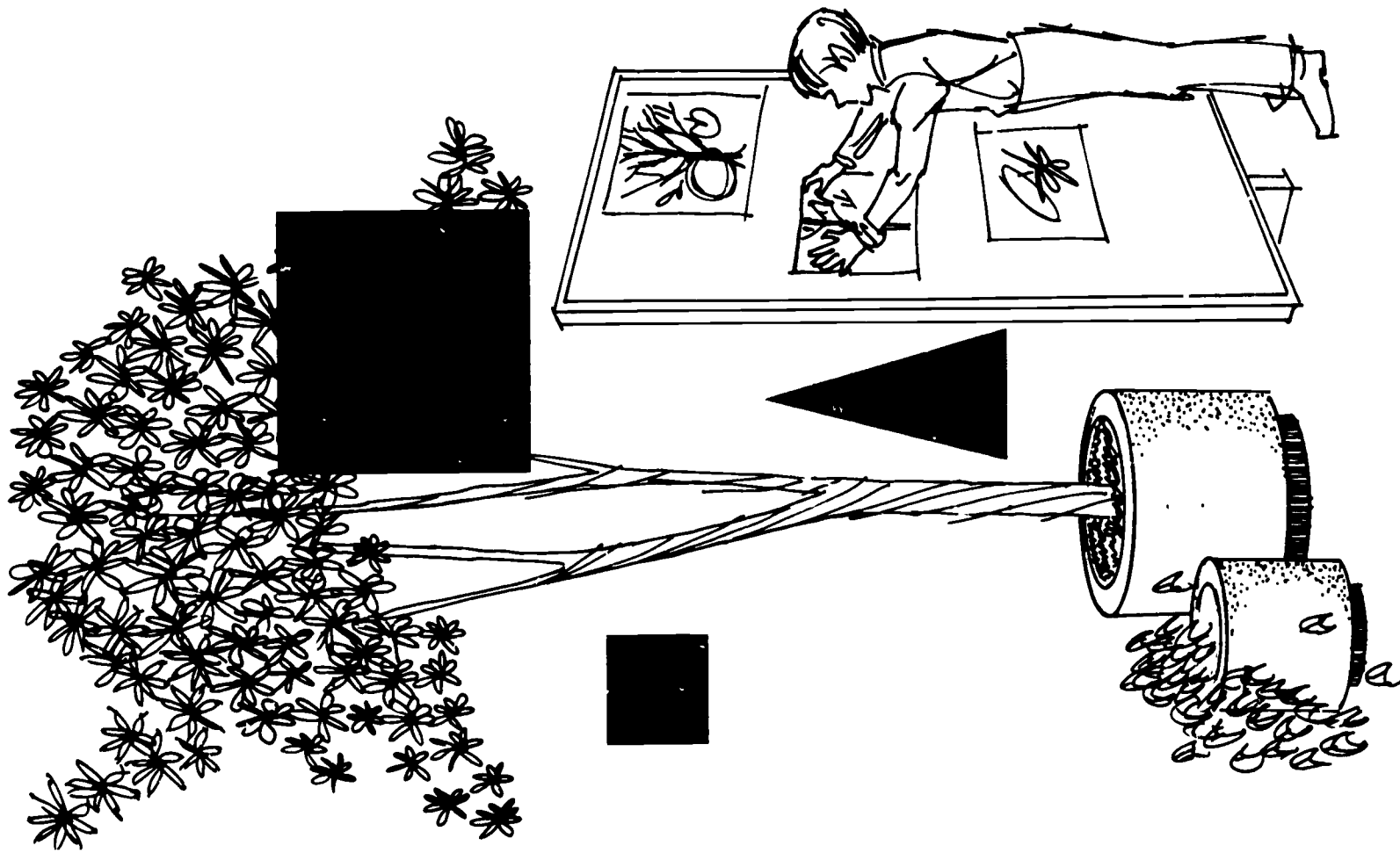
TECHNOLOGY

The teacher and the school should be stimulators, should concentrate on how to assist pupils in acquiring knowledge, how to learn through synthesis, evaluation, and use of knowledge. Since all books, materials, and devices for reading, hearing, seeing, speaking, and doing are provided for learning, they should be where pupils and teachers can have immediate and frequent access to them. The educators should put a vast array of devices and resources directly into the hands of learners and say to

them, "How far can you go? What can you do? What can you discover?" The extent to which tools and resources of learning are being systematically placed in shrine-like centers where they only receive proper care and protection is alarming. Possession of these resources and devices is not a measure of excellence in a school and its program—it is the use that is made of them.

Educators should envision the school as a "living laboratory" with persons in it, a space that has or is its own library and resource center. They should not envision a place with a desk for each pupil, but instead a place having several areas where children do a variety of things. Learning must include "doing." Educators should not envision a place of learning as one having a perimeter of four walls, but one reaching out to all of the community in which it is situated.

Educational specifications must enumerate what the technology is that will be used in the learning-teaching process.



THE ENVIRONMENT

ENVIRONMENT AND THE INDIVIDUAL

Human Needs

The environmental factors are really the heart of the matter when it comes to designing schools, because the buildings and the grounds are the environment in which the educational processes take place.

In planning schools, the main emphasis should be placed on the human needs instead of on the subject matter that may be taught. The buildings and grounds should be designed to provide the various conditions for the activities that take place, not primarily for the course material that is presented.

Changes in Environment

There is constant interaction between man and his environment. Man is influenced by his environment, yet he is constantly changing it, and it in turn changes him. Environmental factors should be modified to allow the individual to do those things which are appropriate to his own human development.

The Child and His Environment

A child is a part of his environment and his environment is a part of him; the child is very subjective about part of the environment because he has little control over it. He accepts it. This environment not only includes the school he attends, but also the house in which he lives. The child may have little to say about the kind of room in which he lives. He may have nothing to say at all about the community in which he lives, or the house in which he lives, or the school which he attends, because these decisions are made by someone else. He certainly has no control over who his parents and siblings are, and he has no control over who his neighbors are. He can reject and accept these people who are a part of his environment; but other than that, he has very little control over his *human* environment.

Sense Perceptions

Man perceives the world and learns through his senses; he understands and responds to his environment through his senses. The environmental factors are those which relate to these senses. Obvious ones are the visual, the thermal, and the auditory factors. These affect the student's efficiency and effectiveness in learning most of all. Educational specifications might remind the architect that the educators care about textures and human comfort as much as they do about maintenance and cleanliness.

ENVIRONMENTAL FACTORS

Variety

It seems to be evident that sameness or monotony, or a dullness of an environment, are inappropriate to man. Some variety, some stimulation resulting from change, is good for people. Monotony may cause boredom.

Orderliness

There also should be some orderliness about the environment, an orderliness that produces a sense of knowing where one is to avoid getting lost, an environment that is reasonably understandable even to children. Too often, reliance is placed on the children's abilities to accept and adapt to that which may not be good for them instead of providing environments that are appropriate. In planning schools, emphasis should be placed on the students' needs, not on wishes and whims of the custodian, or of the school board, or of the superintendent, or a college consultant, or personnel in the Department of Public Instruction.

Safety and Sanitation

The environment should be a safe one. Safety of buildings has to do with fire resistivity and with sanitation; it also has to do with keeping the building from falling down. There are codes and regulations which, if followed, will result in buildings that are acceptably safe and sanitary. Educational specifications should include something about safety and sanitation. But more attention should be given in educational specifications to assuring safety characteristics about which the codes say nothing—such as safety from motor vehicles, from uneven and poorly-tended grounds; and from possible hazards in science laboratories and shops. The architect should be reminded to watch door-swings, steps, stairs, handrails, depth of landings, slippery floor surfaces, floor-to-ceiling glass panels without railings, and numerous other details which may cause trouble. It is also well to point out the need for concern for the physically handicapped. The *North Carolina Building Code, 1967, Section 11X*, deals with building requirements concerning the handicapped.

Thermal Conditions

Thermal comfort is important. A small range in temperature is desirable in order to achieve some kind of variety. The nature of the task should help determine the thermal conditions that are necessary.

As things now stand, it costs more money to throw heat out of the building than it does to put it in. That is why cooling per unit of temperature difference costs more than it does to heat. There should be no question as to whether or not a school will be air conditioned.

Illumination

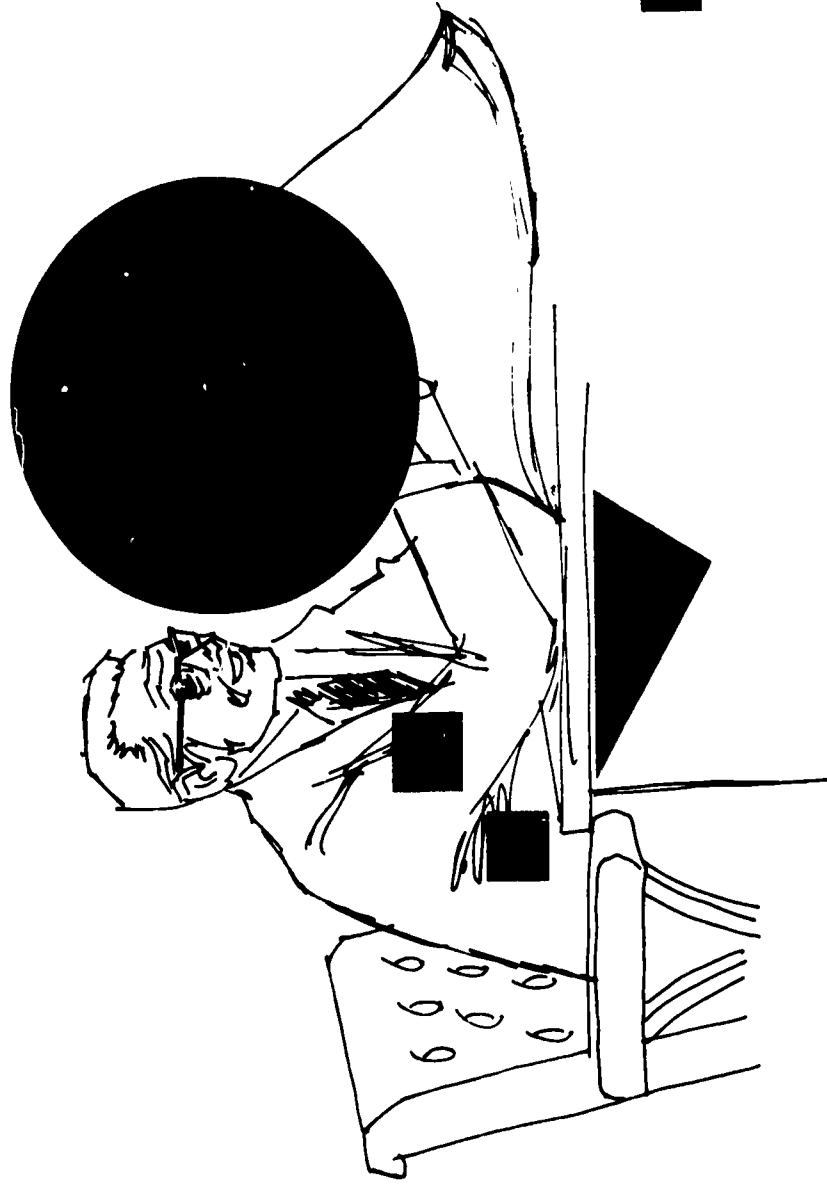
In planning illumination, the architect along with the engineers need to know what takes place in the room to determine what is needed; a lot of bright light, or a little light, and if it is necessary to dim or otherwise control the light. Evenness of illumination is not necessarily the goal of lighting. Avoiding harmful glare is a goal. Special lighting may be required in work centers and laboratories, in study carrels, in library reading areas, in drafting and sewing rooms, and in art rooms. Variation in lighting is desirable in dining rooms, auditoriums, student lounges, and student commons areas and lobbies. Not all artificial lighting has to come from the ceiling.

Acoustics

There is nothing simple about acoustics. Acoustical decisions must be made after determining what the building spaces are used for.

Aesthetics

There should never be a question as to whether a school ought to be a pleasant place to be. It should be. This does not call for luxury; on the contrary, it may call for a kind of simplicity and sparseness, with great economy of materials and finishes relying primarily on good relationships, proportions, color, and textures. A combination of interesting spaces, agreeable for use in a great variety of situations, is what is really needed in a school.



DEVELOPING EDUCATIONAL SPECIFICATIONS

Who Is Involved?

The question, "How may educational specifications be developed?", has been dealt with in many ways. Many have talked about the topic; others have written about the question in school facilities literature; and some planning guides have contained a section dealing with the topic.

The approach to developing educational specifications, as shown by experience, has been one or a combination of a number of ways:

- By the architect
- By a paid consultant
- By the superintendent
- By the architect and superintendent
- By the superintendent's staff
- By the superintendent's staff and architect
- By the superintendent, staff, architect, educational consultants, and all those who will use the building, or representatives of all those who will use the building

ORGANIZING

Variables

The first major task in developing a set of educational specifications is organizing people, tasks and materials in a sensible and interdependent arrangement so that a goal may be achieved. There are usually two major factors affecting organization which limit or delimit the approach to developing educational specifications:

- The decision of the board of education in setting guidelines or establishing limits for the study
- The basic philosophy (autocratic, democratic, or laissez-faire) of the superintendent of schools—what he believes about the involvement of people

Obviously, there is no ONE WAY to organize for developing educational specifications, because there are many variables. Such variables are represented in the following questions:

- What information is available concerning the school system?
- What information is available concerning students?
- What is the philosophy behind the program?
- What is the curriculum?
- What is the real purpose of educational specifications? Are they prepared as a kind of in-service training for administrators, school board members, teachers, and parents, as well as a communication to the architect?
- Who will be involved?
- What are the important time factors in the project?

General Approach

The basic activities of the superintendent in organizing are:

- Stating the purpose of the educational specifications project
- Determining the organizational form, such as steering committee and subcommittees, or a small committee of the administrative staff, or a combination of a small committee of the administrative staff and teachers or lay persons
- Deciding which people will be involved
- Identifying time factors
- Developing forms for reports and communications
- Supplying the persons involved in the development with basic facts and information

Although variables may indicate how the organization should be set up and although there is no one best way to organize, indications are that there is a general

approach in developing a set of educational specifications that may be considered appropriate, with variations, to fit local situations. This approach may be:

Step 1. The superintendent and board of education should identify the purpose of the educational specifications project.

Step 2. The superintendent of the school system should designate a steering committee, (or make other choices) to give overall direction to the project and to charge it with the responsibility of (a) completing the organizational form for the project, (b) deciding which people to involve, (c) identifying the time factors, (d) developing forms for reports and communications, and (e) providing basic facts and information to all involved in developing the educational specifications. The superintendent should designate a chairman of the committee (if the committee organization is followed) who may serve as the director of the project, or he may serve in this capacity.

The steering committee should concern itself especially with policy and with the collection and distribution of information. It should establish a desired number of committees for the purpose of studying and then preparing a written statement on the following factors:

- *Facts and Basic Information*
- *Instructional Program*
 - Philosophy*
 - Objectives*
 - Activities—the program with emphasis on trends, the present program and changes, plus the number of pupils and teachers*
 - Furniture and equipment needs*
 - Space needs (kind, number and estimated size)*
 - Space relationships (expressed in writing and drawings)*
- *Physical Requirements*
 - Visual (color, beauty, lighting)*
 - Acoustical (floor, ceilings, between spaces)*
 - Thermal (heating, cooling)*
 - Safety*
 - Sanitation*
 - Furniture and equipment*
 - Flexibility*

The steering committee should also develop forms for reports and communications to be used by study committees to insure thorough coverage and uniformity in reporting. It should determine the role of consultants from colleges, universities, other school sys-

MEETINGS

tems, and the State Department of Public Instruction. It should collect and disseminate information. And it should arrange for school visitations and make any financial arrangements necessary.

Step 3. After the steering committee has completed its tasks, the director of the project should hold a meeting with the chairmen of all study committees for the purpose of explaining the project—its purposes and procedures. The time schedule and reporting forms developed by the steering committee should be reviewed, and revised, if necessary.

After the chairmen have been oriented, meetings of study committees should begin. If the assumption is made that an entire faculty with administrative staff, consultants from the State Department of Public Instruction, university personnel, and others may participate in the project, experience indicates that approximately six meetings of each committee are necessary to get the job done.

Study committees should give coverage to all program and physical requirements. The meetings might be sequenced as follows:

- *The first meeting might be concerned with the trends in public education and the educational philosophy and objectives of the school.*
- *A second meeting might deal with activities and the estimated enrollment for activities, including the number of personnel to be involved in the program—actual happenings that take place within the school program. The second meeting might also cover present program or course offerings, future program or course offerings, activities that will take place within the teaching-learning spaces in all of these programs, the number of estimated pupils in each program, and the number of teaching personnel needed to effect the program.*
- *A third meeting might be concerned with the furniture and equipment needed in its relationship to the activities of pupils and teachers and the relationship of furniture and equipment to space.*
- *A fourth meeting might identify space requirements—the kind, number, and estimated size of spaces.*
- *A fifth meeting might provide for a study and identification of space relationships. Words as well as drawings may be used.*
- *A sixth meeting might be devoted to basic considerations dealing with the environment. This last meeting could also serve as a time for each study committee*

to give a brief report of what the committee has found in its study and what the written report contains. Written reports should be presented to the director of the project and to the steering committee during the last meeting of study committees. All committees should be present for the oral reports to the steering committee.

ASSEMBLING REPORTS

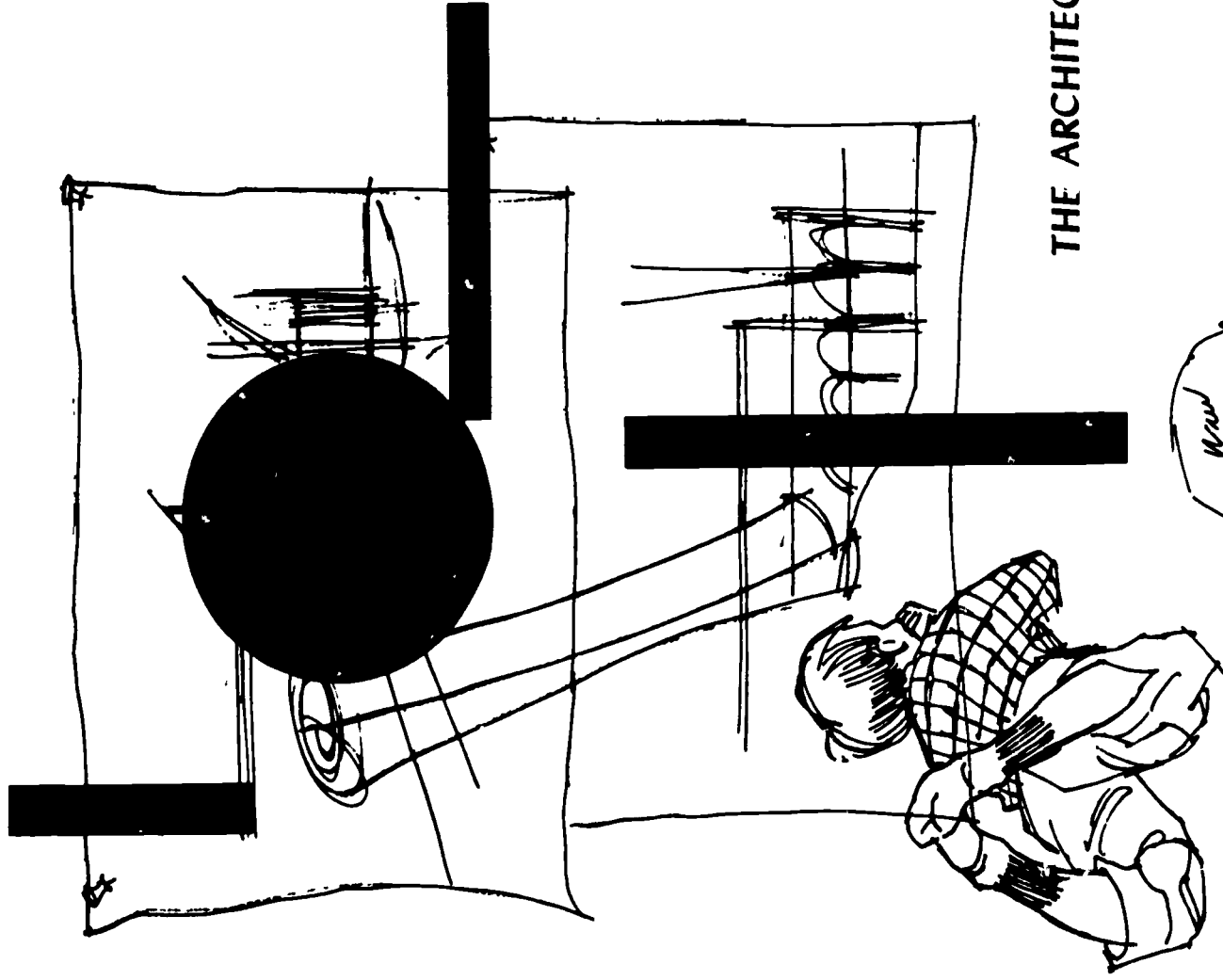
Assembling study committee reports is an important task in developing the educational specifications document. Someone in the project, perhaps the director, must assume the major portion of the responsibility for assembling the committee reports into a total document. Editing and making pertinent summaries are the main tasks to be completed. This is not to say that the director must do all of the work himself; he must direct it. Others, such as English teachers, business education teachers, and educational consultants, may assist in the assembly process.

In assembling all written material into the final set of educational specifications, attention must be given to summarizing the kind of spaces, number of spaces, estimated size of spaces, estimated number of pupils, number of teachers, pertinent environmental considerations, and other basic facts.

Completed Document

When the document is completed, it should be submitted to the superintendent. The superintendent should then submit it to the board of education for evaluation and approval.

Once the document has the approval of the board of education, the director of the project should turn it over to a typist who should retype, if necessary, and duplicate enough copies sufficient to provide a copy to all who participated in the project and to the architect.



THE ARCHITECT AND THE EDUCATOR

USE OF THE EDUCATIONAL SPECIFICATIONS

Educational specifications are more than a guide for a design problem called "school." They may stimulate and encourage the designer to discern pieces of information written between the lines.

Translation of
Language



After the architect receives the educational specifications, he must translate the language of the educator to the language of the architectural design program. The superintendent should participate in this translation through discussions with the architect to make certain there is a clear understanding of the content of the educational specifications. An analysis of the educational specifications by the superintendent and architect may result in revisions.

Following this translation, it is possible to begin a diagrammatic analysis based on the architectural design program. At this point, the original problem for which educational specifications are written may change again. In order to be sure that the sequence from educational specifications to the architectural design program and sketch description result in more than planning superficialities, all concerned should understand the process as continuous. Words and sketches are both part of the same thing. The assembly line approach from words to sketches without feedback is not really satisfactory, unless everyone can think in terms of total concept, or of education and environment as inseparable.

For most projects, well conceived educational specifications will serve the users and evaluators of the building as a guide to its intended use.

SUMMARY

The architect uses the educational specifications in:

- *Interpreting language of the educator and translates it to his own*
- *Conferring with educator to reach clear understanding about translation of educational specifications into designers language*
- *Collaborating with educator to identify and set limits on any problems not clearly set for in specifications*
- *Making diagrammatic sketch analysis of the educational specifications*
- *Consulting with educators concerning diagrammatic analysis and its relationship to educational specifications*
- *Assisting the educator in revising the educational specifications, if necessary, as a result of sketches*
- *Developing sketches into literal designs reflecting translated educational specifications*

APPENDIX

OUTLINE FOR THE EDUCATIONAL SPECIFICATIONS DOCUMENT

- I. Statement to the Architect
- II. Basic Facts and Information
 - The planning process
 - Description of the school community
 - Characteristics of students and adults
 - Statement of general educational philosophy and objectives for the entire school
 - Characteristics of the program, such as organization of the school, schedule, etc.
- III. Basic Environmental Considerations
 - General
 - Thermal
 - Acoustical
 - Visual—color, lighting
 - Safety
 - Sanitation
 - Furniture and equipment
 - Flexibility
- IV. Educational Program Considerations (By department, area, grade or level)
 - Discernible trends
 - Educational philosophy
 - Objectives
 - Activities; studies (course or program offerings, estimated enrollment, personnel)
 - Furniture and equipment
 - Space needs (kind, number, estimated size)
 - Space relationships
- V. Summary of Space Needs
- VI. Summary of Space Relationships

SAMPLE SUMMARY OF BASIC FACTS AND INFORMATION

- Number of pupils
- Expected pupil growth requiring an addition of space
- Number of teachers—aides, etc.
- Team teaching organization, if any
- Number of custodians
- Number of cafeteria workers
- Schedule
- Transportation—number pupils, teachers, auxiliary personnel
- Use of the building by the public
- Others

SAMPLE SPACE SUMMARY

ACTIVITY	ESTIMATED NUMBER OF PUPILS	NUMBER OF TEACHERS	SPACES		
			KIND	NUMBER	ESTIMATED SIZE
Administration					
Art					
Science					

SAMPLE SPACE RELATIONSHIPS

- Note:** (1) Develop one scheme for the whole school
(2) Develop one scheme for each area, such as math and science.

(An Example for Science)

